

# Chapter 1 Introduction

This chapter first provided the broad sociological literatures on adolescent life and their schools. The second was to present the theoretical foundation for models of school environments on individuals' academic outcomes. This is a multi-level question, linking individual action to learning contexts and relational patterns in school classes. Focusing on the mechanisms of social structures act on individuals, explaining how individuals act within the school structures as well as the macro structures, the education systems, allowed us to have more understandings about how schools and educational institutions shape individuals' academic outcomes.

## Background of the Study

Investigators had conducted numerous studies aimed to identify effective schools, determine which practices were related to their effectiveness, and assess the magnitude and stability of school contributions to students' outcomes (M.-Y. Chang & Wu, 2008; C.-J. Chen, 2006; Chiou & Wen, 2007; Gau, 1999; Good & Brophy, 1986; Hallinan, 1994; C.-W. Hsieh & Wu, 2003; C.-J. Huang, 2004a; Kreft, 1993; V. E. Lee & Burkam, 2003; Ma & Klinger, 2000; Murphy, 1985; Willms & Raudenbush, 1989). These studies were usually described as studies of "school effect." However, different studies actually embodied two quite different conceptions of a "school effect." The first might refer to the effect on a student outcome of a particular policy or practice, such as the effect of adopting a school-wide peer tutoring program, while the second might be the extent to which attending a particular school modifies a student's outcome. In Taiwan, lots of studies discussed about the former, however, only few

studies focused on the school effect of a particular school. In searching for studies having “school effect” in the title or key words in “Electronic Theses and Dissertations System” and “Taiwan Periodical Index Database”, only three studies were found that really focus on school effect of particular schools. To improve our understanding of the relationship between schooling and students’ outcomes in Taiwan, in this research, I intended to examine the second conception of a school effect and tried to answer the effects particular schools/classes accountable for their contributions to students’ outcomes.

The second reason to discuss “school effect” was a response to the demands from Entwisle at her presidential address of the annual meeting of the Population Association of America, that our studies needed to put people into place, which meant we have to explain behaviors and outcomes in relation to a potentially changing local context (B. Entwisle, 2007). In fact, places – local social and spatial contexts – influence nearly all aspects of people’s lives, not least of which were their health. For example, a family’s economic disadvantage affected the achievement of its child, but did study in a poor school at a disadvantage above and beyond family factors? When it came to inequality, was schools part of the problems or part of the solutions? With the concern of the influences from social context, this research tried to examine the impacts of educational environment on individuals’ behaviors. For this reason, my research interest was to put students back into their school classes in order to truly know their outcomes and the mechanism and the processes of these outcomes.

In fact, students’ outcomes can be viewed as joint allocation and socialization mechanisms through which parents, teachers and peers push and pull students, however, past studies suggest that parental influences are highly stable over childhood and adolescence (Alexander, Entwisle, & Dauber, 1994, 2003; Dauber, Alexander, & Entwisle, 1996; Yi, Wu, & Chang, 2007; Yi, Wu, Chang, & Chang, 2008). This is

because that parents' plan for their children's education are in place long before high schools, and these plans—or lack of them—affect how they treat their children and how they interact with school personnel (D. R. Entwisle, Alexander, & Olson, 1997; D. R. Entwisle & Hayduk, 1981). While the influences of family context on individuals' behaviors have been discussed lots in past research (D. R. Entwisle & Alexander, 1996; D. R. Entwisle, Alexander, & Olson, 2003; Y.-S. Hsieh & Chen, 2008; L.-W. Huang, 2004b; L.-W. Huang, Hsieh, & Yi, 2005; Y.-T. Huang, 2007; K.-H. Lin & Chang, 2008; Simons, Simons, Burt, Brody, & Cutrona, 2005; C.-I. Wu & Lei, 2005; G. H.-M. Wu, Chong, Cheng, & Chen, 2007; M.-Y. Wu, Chang, & Lin, 2005; Yi, et al., 2007), school effects are relatively less discussed, especially in Taiwan.

Over the last decade, a growing body of evidence has emerged that shows the nature of school and classroom contexts is critical to understanding changes in motivation and engagement during adolescence (Alexander, et al., 1994; M.-Y. Chang & Wu, 2008; Maehr & Midgley, 1996; Midgley, 1993; A. M. Ryan, 2001; Simmons & Blyth, 1987). The peer group is also an important context of development during this stage of life (Berndt, 1992; Berndt & Keefe, 1995; I.-C. Chen, Wu, & Chang, 2007; Garcia, 2006; Y.-S. Hsieh, Chang, & Wu, 2007; Ladd, 1990; A. M. Ryan, 2001; C.-I. Wu, Chang, & Huang, 2006; C.-I. Wu & Lei, 2005). However, they often separated school effect into different parts and discussed them separately, and forgot their interplays with both, and most importantly, in a long-term time span, this dynamic, continuing interacting process could introduce many possible. So, I argue that we should view school/class as a whole and follow students' developmental trajectories at school in long-term time span in order to find out the true mechanisms.

Coleman's work about adolescence may give us some insights (1961) to discuss the school effect. In his famous book, *the Adolescent Society*, he gave us a

rough picture about students' life in American schools. He viewed school as a live social system where values, norms, customs, and relationships formed. Students lived in that system, formed their own cultures and relation networks, and were influenced by their cultures and networks. All these cultures and relationships in that complex system make up adolescent social life. So, his research about adolescent development in adolescent society followed these two lines, the norms/cultures adolescents formed and the influences of these norms/cultures as well as the relationships adolescents connected each others and the impacts of the relation patterns in order to understand students' development in their real life.

Coleman's research thinking had the same idea with Blau by coincidence. Blau (1960) pointed out that, in empirical research, social structures were usually characterized, explicitly or implicitly, by frequency distributions of behavior of individuals or relationships among them. Two basic types of social structure can be distinguished: one is relational, involving ties between individuals or groupings of individuals, and the other is relates to the social units within which individuals and groups of individuals are contained (B. Entwisle, Faust, Rindfuss, & Kaneda, 2007). Schools, firms, and neighborhoods are examples of these social units. To fix terms, they referred to the former as "networks" and the latter as "contexts". They documented substantial variability in network structure by using the data from multiple villages in Nang Rong, Thailand, and suggested that the structure of village networks making a difference for an individual-level outcome. I then wondered that if this pattern repeated in school classes? Under the relatively high stress of educational competition in Taiwan, will classes of different networks and contexts make differences for individuals' performances? If the answer is yes, what are the patterns and the mechanisms? In order to profoundly clarify the impacts of social structure, in this research, I also subdivided the social structure, school environments, into the

contextual part and the relational part, which were termed as contexts and networks. The relational part of social structure represented the relationships among students, their classmates, their school teachers and school personnel. The contextual part reflected the school characteristics.

How could one disentangle the structural effect from individuals' characteristics or variability? For example, how could we demonstrate that overall social relational ties exert external constraints upon the acting and thinking of individuals? Blau (1960) suggested and illustrated a method for isolating the effect of social structures. Entwisle et al. (2007) further clarified Blau's operational model, which included, in its simplest form, a contextual variable, its individual-level counterpart, and an individual-level outcome. The direct effect was interpreted as the effect of normative environment while the indirect effect is interpreted as the effect of opportunity structure. Blau (1960) documented that both of the basic aspects of the social structure, the relational part and the contextual part, had direct effect and indirect effect on individuals' behaviors in organizations. Here, I intended to testify Blau's social structure theory in school units to assess the structural impacts on adolescents. I separated school environment into two different parts, named as local contexts and networks, and tried to examine the direct effect and the indirect effect of the local networks and contexts on individuals' outcomes within the special educational environment in Taiwan. Because the multilevel nature of this research design (i.e., individuals nested in contexts), hierarchical linear model will be applied in the research.

In Adolescent Society, Coleman found the degree adolescents integrated into school systems was crucial for successful adaptation, including academic and psychological adaptation. Coleman used a simple index to measure the degree of integration, that is, the friend number one has in his school. The result showed the

outsiders and the adolescents with fewer friends tended to have negative feelings about self with the result that were likely to withdraw from the system or be rejected from the system. In fact, socially isolated were found to be related to adolescent suicidal thoughts (Bearman & Moody, 2004), weapon carrying (Moody, 2002), lower self-esteem (C.-I. Wu & Lei, 2001) and bad mental health (C.-I. Wu & Li, 2001). To link up Coleman's thinking with Blau's theory, I argued that the structure effect can act on, individual's integration into this system is the key point, especially in classroom context. Nevertheless, Coleman's measure seems to over simplify to capture individual's integration into their school classes. Hence, I used three indicators, outdegree, popularity and permeability. Outdegree and permeability reflected individuals' ties connected from themselves to their friends inside and outside their school classes, and popularity represented ties connected from their classmates to themselves.

In *Coleman Report*, it was found that variations in the facilities and curriculums of the schools account for relatively little variation in pupil achievement (Coleman, et al., 1966), however, in the survey of the high school and beyond, Coleman, Hoffer, and Kilgore (1982) found students in private schools had better academic performance than those in catholic schools because of safer environment, more trainings, and more norms for students. Lee and Bryk (1989) used multilevel analysis to reanalyzed Coleman's data and found the normative school environment, such as schools' social composition and their academic emphasis, significantly influenced students' academic performance. In Taiwan, it was found class size and school urbanization had significant effects on adolescent performances (Y.-S. Hsieh & Chen, 2008; K.-H. Lin & Chang, 2008; Yi, et al., 2007). From these literatures, we could conclude that reasons why local school contexts might matter for individual behavior can be classified in a variety of ways, in which, school resources, school

types, collective socializations might be the key factors.

It was documented that social interaction in organizations was important for individuals' behaviors (Moffitt, 2001; Sampson, Morenoff, & Gannon-Rowley, 2002). Entwisle et al. (2007) pointed that the main reasons why patterns of social interaction relate to individual behaviors was because of "social cohesion". The concept of social cohesion dated back to Durkheim's concept of solidarity (1933) and is defined by Schacter (1968) as "the social forces that draw and bind men/women together". However, Social cohesion itself is not necessarily a good thing—it could have positive effects by bringing people together in supportive acts or negative effects by bringing people together in detrimental acts (B. Entwisle et al., 2007). It's the nature of cohesion that affects individuals' behavior (Blokland, 2000). Consequently, we should take the shared norms/values of friendship groups into account. In the research, I used class climate as an indicator to capture the shared norms/values in school classes.

In every social context, certain values are highly rewarded, while others are not. Also, in a school context, some values are rewarded by the teacher and the school, while some are rewarded by the adolescent culture. For example, in Coleman's observation, he found the senior leading crowd in Green Junction seems to have branched in two groups along the lines of scholastic orientation—high-studiers vs. low-studiers, those interested in learning vs. those not, those going to college vs. those not (1961). In Green Junction, the latter have more status in the adolescent system, and the former conform more to the desires of teachers. These values that adolescent peers approved, admired, and respected are the resources of the adolescent culture. In fact, the association patterns of adolescent peer groups help to reinforce certain values, undercut others; pull energies in the direction of some activities and away from others; strengthen the prestige of some persons, weaken that of others. They are, in part, a

source of the culture, and in part are determined by it. This concept is consistent with recent studies of adolescent friendship network (Berndt, 1992; I.-C. Chen, et al., 2007; Y.-S. Hsieh, Wu, & Lei, 2006; Moody, 2001; Mouw & Entwisle, 2006; Snijders & Baerveldt, 2003; C.-I. Wu & Chang, 2008). The selection and influence processes among adolescent friends form the homophilic friendship groups. In fact, this is the interaction between networks and contexts that adolescents reinforce the values they approved through connections. They select friends whose values or attitudes like them and they influence each other. Through the selection and influence process, we will see the homogeneity within and heterogeneity between adolescent groups. Based on this idea, I argued networks, contexts and individual behaviors interact with each other through some meaningful patterns in school environments. That is, school classes with students have more similar values will more cohesive and less segregate in their network relation patterns, and students' behaviors hence will be more congruent with school objectives.

For adolescents in Taiwan, in their junior high school years, to advance high school is the most important thing they have to do. Almost all school-related activities are academic orientated and this academic orientation guides school administrations and students' life experiences. How much does this strong academic orientated climate influence adolescent outcomes, especially for their academic performance? Past research indicated educational climate influenced students' academic performance and students' aspirations toward entering university (Anderson, 1982; Brookover, et al., 1978; M.-Y. Chang & Wu, 2008; Ma & Klinger, 2000; McDill, Rigsby, & Meyers, 1969; Michael, 1961). Most of these research confirmed that better educational climate has positive effect on students' academic outcome. However, I argue this effect will differ by individuals' position in their class. While the effect of class climate will be reinforced if the student integrates more into class, it will be

suppressed if the student integrates less. That is to say, students' studied in school classes have better climate, more cohesion, and more resource would be expected to have better performance and these school effects would be moderated by students' integration into school classes. This was the first research question addressed in the study. For students in Taiwan, especially in their junior high school periods, since the most important objective for them was to advance high school, this study focused on their major developmental outcomes, the academic performance, and tried to entangle the causal relationships among students' behaviors and the school environments from the proceeding interactive processes of individual and the environments in a three-year time span.

In this research, at individual level, I use individual's position in class as an index of the degree one integrates into his/her class. At class level, I measured class cohesion based on the relational structure among students of the entire school class, I also test the class climate, the shared value in common in the class. All these two measures categorized into relational part to represent the social interaction in school classes because of all these were related to the interactions among students and their classmates, their school teachers, and their school personnel. I also measure the school context by two indicators, named as school urbanizations and class type, to represent the physical environments of the school classes. By operating these measures from the class-level, this research testified how the local structure influences its members. While observing the individual variation, I examined the local variability in opportunity structures in order to test the indirect effect of local structure. From these examinations, this study further answered the core question in sociology, that is, how social structure influenced individuals in terms of the processes and the mechanisms?

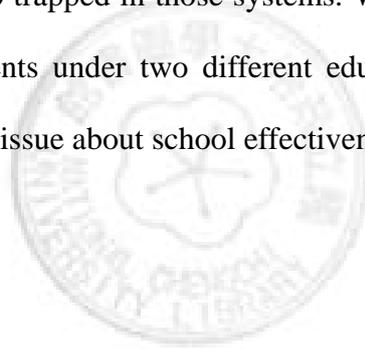
In Taiwan, to enter high schools, students have to pass entrance exam. The

educational competition not only imposes unequivocal expectations on adolescents, it actually conditions their life experiences. The exam stress brought lots of educational problems and individuals' adapted problems. Education reform was implemented in order to mitigate the stress of education competition. Diverse entrance, the new education system, was implemented to substitute for the single entrance, the entrance exam, the old system. Education reformers believed that diverse entrance would bring diverse values into schools so that not only the academic-orientated value would be rewarded by teachers and students. However, past research didn't support this argument. Ko (2006) indicated students even had more examination pressure after education reform. Besides, recent research findings support the gradually increasing significances of family backgrounds on students' performance for students from new education system (J.-J. Chen & Liu, 2004; Y.-G. Chen, Chen, & Huang, 2006; Y.-S. Hsieh & Chen, 2008; Y.-J. Huang & Chen, 2008; Y.-J. Huang & Chen, 2005a, 2005b; C.-Y. Lin & Huang, 2008a; C.-Y. Lin & Wu, 2007; D.-S. Lin & Chen, 2007; K.-H. Lin & Chang, 2008). Because the effect of family SES get more and more significant, the school effect should become relatively less significant. Furthermore, Lin and Chen (2007), Liu (2006) and Huang and Chen (2008) demonstrated more and more students of new education system went to cram school in order to advance better high schools. The increasing importance of cram schools on students' performance relatively decreases schools' influences. For these reasons, I suspected that the effects of class networks and school contexts would become less significant for students from new education system than for those from old system.

Using data from two different panel studies, this study compared two groups of students under two different educational systems, the entrance exam and the basic competence test and these comparisons focused on adolescent life in school campus. The author displayed the characteristics in networks and contexts under the two

different educational systems and tried to find out the similarities and the dissimilarities. By comparing the similarities and differences between the two different student cohorts, I intended to scrutinize whether education reform change students' life experiences and further, to examine how education system influence and modify schools' effects on their students' academic performance in order to answer the question about the efficiency of education reform.

In short, in this research, I first explored the characteristics of local network and context, examining the environmental effects on students' academic performance with controlling the influences of family backgrounds and students' gender, and, then, I compared two macro structure effect of different educational systems, showing their impacts on individuals who trapped in those systems. With the concern of the school effects on individual students under two different education systems, this research ended up with the practical issue about school effectiveness.



## Research Purposes

Controlling the influences of individuals' family backgrounds and individuals' gender, focusing on the school/class effect, this paper intended to identify and separate the networks and contexts influence on the major outcome variables of adolescent development, the academic performance. Previous works either examined the class effect of context or network separately or testified the effect only by using cross-sectional data, ignoring the interactive process in a long run. The author extended previous works by using two panel datasets with complete network data in order to examine how the life experiences in junior high schools influence adolescent outcome in Taiwan.

By comparing two cohort students from different educational systems, we could see the similarities and dissimilarities of class networks and contexts and further explore the influences of macrostructure on individual actors. Thus, the second purpose of this study tried to answer the question about the effect of the educational reform in Taiwan. Did the implementation of educational reform modify students' life experiences in junior high school and then influence their academic outcomes? Not only examining the school effects on students' academic outcome, the study also comprehensively scrutinized adolescent lives in junior high schools of two different education systems. An overall observation like this helped us have a real understanding about our adolescent lives and about how educational system influences adolescents trapped in the special competitive educational environment in Taiwan.

From the theoretical perspectives, this research tried to investigate Blau's theory of structural effects in order to have more understandings about how social

structure conditions individual's academic outcomes and tried to find out the ways one can escape from structural conditioning. Further, the author tried to display the adolescent society in Taiwan by observing adolescent life experiences in junior high school so that we could really understand the growing process of our adolescents from a local viewpoint, therefore, an indigenous theory could be possible. From the policy applications, this study reappeared adolescent life extensively. Consequently, parents, teachers, school administrators, and educational authorities could have more understanding about our adolescents. How did the educational environment in Taiwan condition their life experience? What was the price students need to pay to successful survival from the systems to advance to a higher school? Following these detail observations, some policy conclusions were drawn.



## Research Questions

In order to examine adolescent outcomes under the conditioning of their school environments, this study first focused only on the school effect and tried to answer how students' school experiences and their school environment influence adolescent academic outcomes, including their academic performance in junior high schools and their high school placements. Moreover, literatures documented the unique competitive educational environment in Taiwan significantly and profoundly conditioned students' life experiences. As a result, the research also focused on how the education systems modified the school effects on individual student.

The school environment were subdivided into the relational parts as well as the contextual parts, which were named as networks and contexts respectively, in order to examine the structure influences on every individual embedded in the social system that Blau proposed in his social structural theory. Individuals' integration into the school systems were treated as individual-counter parts. So, the direct effect as well as the indirect effect of networks and contexts were testified. Finally, comparing school effect on adolescent academic outcomes in two educational systems in Taiwan helped us to have more understanding about the influences of macro-structure on school effectiveness and students' learning outcomes. Following the research purposes, this research tried to answer these following questions:

According to Blau's social structure theory, social contexts and social relational patterns should directly and indirectly affect individuals' outcomes. In its' operational model, the indirect effect was through the individual-level counterpart. In my research model, individuals' integration was treated as individual-level counterpart. So, my first three research questions were:

1. Did students' integration into class influence individuals' academic performance?
2. Did school context (school urbanization and class type) directly influence individuals' academic performance, and at the same time moderate the effects of individual' integration into class?
3. Did school network directly influence individuals' academic performance, and moderate the effects of individual' integration into class on individuals' academic performance?

In Taiwan, education reform was administrator to mitigate adolescent learning stress to advance high schools. Diverse entrance was believed to bring diverse values into school classes and change the single value of intellectual culture. Since diverse values tolerated more opinions, school classes under the new education system were believed to become more cohesive and have better climate. The education objectives were hence believed to be easy accomplished. Following these discussions, the fourth research question was:

4. Did students form different educational systems be different in the causal relationships between the class environments and individuals' outcomes.